

Message Text

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TO AMEMBASSY MOSCOW IMMEDIATE

S E C R E T STATE 296838

EXDIS

E.O. 11652: XGDS-3 IMPOSSIBLE TO DETERMINE

TAGS:PARM, US, UR

SUBJECT: TTBT/PNE NEGOTIATIONS

STATE PNE MESSAGE NUMBER SEVENTEEN

1. REFERENCE STATE 279417, PARA 4. THE NUCLEAR MONITORING RESEARCH OFFICE OF DARPA HAS COMPLETED A COMPARISON OF THE ASTM STANDARD D2664-67 FOR ROCK STRENGTH DETERMINATION AND THE PROCEDURES OUTLINED IN THE SOVIET MANUAL DESCRIBING COMPRESSIVE STRENGTH TESTING FOR MINING APPLICATIONS. PARAGRAPH TWO OF THIS MESSAGE ADDRESSES THOSE DIFFERENCES BETWEEN THESE TWO SETS OF PROCEDURES WHICH COULD SIGNIFI-

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CANTLY AFFECT THE USE AND INTERPRETATION OF THE DATA.

2. THE SOVIET DOCUMENT IS BROADER IN SCOPE THAN D2664-67, COVERING SAMPLE SELECTION, HANDLING AND PREPARATION NOT COVERED IN D2664-67. IN GENERAL THESE PROCEDURES ARE ACCEPTABLE. THE SOVIET TEST EQUIPMENT AND PROCEDURES ARE DESIGNED FOR STRENGTH DETERMINATION FOR MINING APPLICATIONS WHILE THE ASTM STANDARD COVERS ROCK STRENGTH TESTING FOR GENERAL APPLICATION. IN ADDITION TO LOAD MEASUREMENTS, THE ASTM STANDARD PROVIDES FOR THE MEASUREMENT OF ROCK SAMPLE DEFORMATION DURING LOADING TO FAILURE. THE SOVIET MANUAL SPECIFIES ONLY LOAD MEASUREMENTS. ALTHOUGH THE STRENGTH CAN BE DETERMINED WITH ONLY LOAD MEASUREMENTS, SIMULTANEOUS MEASUREMENT OF DEFORMATION AND LOADING AS IS STANDARD US PRACTICE IN STRENGTH TESTS PROVIDES INFORMATION WHICH IS USEFUL IN MODELING BEHAVIOR FOR YIELD PREDICTION. ASTM SPECIFIES ONLY THAT THE TESTING DEVICE BE CAPABLE OF PRODUCING AND CONTROLLING THE DESIRED LOADING CONDITIONS WITHOUT SPECIFYING THE MAGNITUDE OF LOADS. THE SOVIET EQUIPMENT DESCRIBED IN THE MANUAL CAN PROVIDE DATA ONLY TO .5 KILOBARS WHICH IS STANDARD FOR MINING APPLICATIONS. IT IS DESIRABLE THAT STRENGTH DATA FOR CONFINING PRESSURES UP TO 5 KILOBARS BE OBTAINED. SINCE THE ASTM STANDARD SPECIFIES DEFORMATION MEASUREMENTS, CAREFUL ATTENTION IS PAID TO SEATING THE TEST SPECIMEN IN THE DEVICE AND TO STRAIN MEASUREMENTS WHICH ARE OF COURSE NOT SPELLED OUT IN THE SOVIET DOCUMENT. A RELATED OMISSION IN THE SOVIET DOCUMENT IS THE SPECIFICATION OF ACCEPTABLE BOUNDS FOR RATE OF LOADING AND THE DEFINITION OF A STRAIN CRITERION FOR FAILURE. THE LATTER CAN BE IMPORTANT IN DEFINING THE STRENGTH OF DUCTILE ROCKS. IN GENERAL THE SOVIET MANUAL IS MUCH MORE CASUAL ABOUT SPECIFYING PRECISION OF MEASUREMENTS ASSOCIATED WITH THE TESTING. D2664 OUTLINES THE INFORMATION TO BE INCLUDED IN REPORTING TEST RESULTS. THE SOVIET MANUAL DOES NOT CONTAIN SUCH A SPECIFICATION BUT TREATS CALCULATION OF THE FAILURE SURFACE FROM THE TEST DATA AT GREAT LENGTH.

3. OVERALL, DARPA JUDGES THE SOVIET TECHNIQUE FOR ROCK STRENGTH DETERMINATION ACCEPTABLE AS IT STANDS FOR MOST ROCK. THE USE OF EQUIPMENT PERMITTING MEASUREMENT OF

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BOTH DEFORMATIONS AND LOADS ASSOCIATED WITH STRENGTH TESTS AND WITH A CONFINING LOAD CAPACITY OF A FEW KILOBARS WOULD SIGNIFICANTLY ENHANCE THE APPLICATIONS OF THE DATA. IT IS UNDERSTOOD THAT THE AVAILABILITY OF SUCH EQUIPMENT MAY BE LIMITED IN THE SOVIET UNION.

4. THE DELEGATION CAN PURSUE THE POINTS CONCERNING EQUIPMENT MADE IN PARA THREE WITH THE SOVIETS. IN ADDITION,

IT WOULD BE USEFUL IF A DEFINITION OF M. PROTOD' YAKONOV'S
STRENGTH COEFFICIENT REFERRED TO AT THE END OF SECTION ONE
OF THE INTRODUCTION OF THE SOVIET DOCUMENT COULD BE
OBTAINED.

5. FOR BUCHHEIM. PLEASE ADVISE ARRIVAL DATE WASHINGTON.
SON PLANNING VISIT TO WASHINGTON DEC 22. INGERSOLL

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NNN

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